



<110> Jager, Dirk
Stockert, Elizabeth
Scanlan, Matthew
Gure, Ali
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Chen, Yao-tseng

<120> Isolated Nucleic Acid Molecules Encoding Cancer Associated Antigens,
the Antigens Per Se, and Uses Thereof

<130> LUD 5793.1

<140> US 10/729,340

<141> 2003-12-04

<150> US 60/430,869

<151> 2002-12-04

<150> US 10/181,663

<151> 2000-11-29

<150> US 09/602,362

<151> 2000-06-22

<150> US 09/451,739

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ccattccttt	catagggatg	gcagtgattc	tgtttgcctt	ttgttttcat	tggtacacgt	1080
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cccatcgacc	ccaacgaacc	cacgtactgt	ctgtgcAacc	aggtctccta	tggggagatg	660
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gaagaagaag cgctccaagg ccāaggcgga gcgagaggcg tcccctgccg acctcccat 720
cgacccaac gaaccacgt actgtctgtg caaccaggtc tcctatgggg agatgatcgg 780
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20          25          30
Asn Val Ser Leu Met Arg Glu Ile Asp Ala Lys Tyr Gln Glu Ile Leu
35          40          45
Lys Glu Leu Asp Glu Cys Tyr Glu Arg Phe Ser Arg Glu Thr Asp Gly
50          55          60
Ala Gln Lys Arg Arg Met Leu His Cys Val Gln Arg Ala Leu Ile Arg
65          70          75          80
Ser Gln Glu Leu Gly Asp Glu Lys Ile Gln Ile Val Ser Gln Met Val
85          90          95
Glu Leu Val Glu Asn Arg Thr Arg Gln Val Asp Ser His Val Glu Leu
100         105         110
Phe Glu Ala Gln Gln Glu Leu Gly Asp Thr Val Gly Asn Ser Gly Lys
115         120         125
Val Gly Ala Asp Arg Pro Asn Gly Asp Ala Val Ala Gln Ser Asp Lys
130         135         140
Pro Asn Ser Lys Arg Ser Arg Arg Gln Arg Asn Asn Glu Asn Arg Glu
145         150         155         160
Asn Ala Ser Ser Asn His Asp His Asp Asp Gly Ala Ser Gly Thr Pro
165         170         175
Lys Glu Lys Lys Ala Lys Thr Ser Lys Lys Lys Lys Arg Ser Lys Ala
180         185         190
Lys Ala Glu Arg Glu Ala Ser Pro Ala Asp Leu Pro Ile Asp Pro Asn
195         200         205
Glu Pro Thr Tyr Cys Leu Cys Asn Gln Val Ser Tyr Gly Glu Met Ile
210         215         220
Gly Cys Asp Asn Asp Glu Cys Pro Ile Glu Trp Phe His Phe Ser Cys
225         230         235         240
Val Gly Leu Asn His Lys Pro Lys Gly Lys Trp Tyr Cys Pro Lys Cys
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Lys	Glu	Arg	Ala	Tyr	Asn	Arg									
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			20				25					30			
Arg	Thr	Arg	Gln	Val	Asp	Ser	His	Val	Glu	Leu	Phe	Glu	Ala	Gln	Gln
			35				40					45			
Glu	Leu	Gly	Asp	Thr	Val	Gly	Asn	Ser	Gly	Lys	Val	Gly	Ala	Asp	Arg
			50			55				60					
Pro	Asn	Gly	Asp	Ala	Val	Ala	Gln	Ser	Asp	Lys	Pro	Asn	Ser	Lys	Arg
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Ser	Arg	Arg	Gln	Arg	Asn	Asn	Glu	Asn	Arg	Glu	Asn	Ala	Ser	Ser	Asn
			85					90						95	
His	Asp	His	Asp	Asp	Gly	Ala	Ser	Gly	Thr	Pro	Lys	Glu	Lys	Lys	Ala
			100					105					110		
Lys	Thr	Ser	Lys	Lys	Lys	Lys	Arg	Ser	Lys	Ala	Lys	Ala	Glu	Arg	Glu
			115				120					125			
Ala	Ser	Pro	Ala	Asp	Leu	Pro	Ile	Asp	Pro	Asn	Glu	Pro	Thr	Tyr	Cys
			130				135				140				
Leu	Cys	Asn	Gln	Val	Ser	Tyr	Gly	Glu	Met	Ile	Gly	Cys	Asp	Asn	Asp
145				150					155					160	
Glu	Cys	Pro	Ile	Glu	Trp	Phe	His	Phe	Ser	Cys	Val	Gly	Leu	Asn	His
			165					170						175	
Lys	Pro	Lys	Gly	Lys	Trp	Tyr	Cys	Pro	Lys	Cys	Arg	Gly	Glu	Asn	Glu
			180				185						190		
Lys	Thr	Met	Asp	Lys	Ala	Leu	Glu	Lys	Ser	Lys	Lys	Glu	Arg	Ala	Tyr
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Asn	Arg														
			210												

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			20				25					30			
Ala	Leu	Ile	Arg	Ser	Gln	Glu	Leu	Gly	Asp	Glu	Lys	Ile	Gln	Ile	Val
			35				40					45			
Ser	Gln	Met	Val	Glu	Leu	Val	Glu	Asn	Arg	Thr	Arg	Gln	Val	Asp	Ser
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His	Val	Glu	Leu	Phe	Glu	Ala	Gln	Gln	Glu	Leu	Gly	Asp	Thr	Val	Gly
65				70					75					80	

Asn	Ser	Gly	Lys	Val	Gly	Ala	Asp	Arg	Pro	Asn	Gly	Asp	Ala	Val	Ala
			85						90					95	
Gln	Ser	Asp	Lys	Pro	Asn	Ser	Lys	Arg	Ser	Arg	Arg	Gln	Arg	Asn	Asn
			100					105					110		
Glu	Asn	Arg	Glu	Asn	Ala	Ser	Ser	Asn	His	Asp	His	Asp	Asp	Gly	Ala
		115					120					125			
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	130					135					140				
Arg	Ser	Lys	Ala	Lys	Ala	Glu	Arg	Glu	Ala	Ser	Pro	Ala	Asp	Leu	Pro
	145				150					155					160
Ile	Asp	Pro	Asn	Glu	Pro	Thr	Tyr	Cys	Leu	Cys	Asn	Gln	Val	Ser	Tyr
			165					170						175	
Gly	Glu	Met	Ile	Gly	Cys	Asp	Asn	Asp	Glu	Cys	Pro	Ile	Glu	Trp	Phe
		180					185					190			
His	Phe	Ser	Cys	Val	Gly	Leu	Asn	His	Lys	Pro	Lys	Gly	Lys	Trp	Tyr
	195						200					205			
Cys	Pro	Lys	Cys	Arg	Gly	Glu	Asn	Glu	Lys	Thr	Met	Asp	Lys	Ala	Leu
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Glu	Lys	Ser	Lys	Lys	Glu	Arg	Ala	Tyr	Asn	Arg					
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<210> 10
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23

<210> 11

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<400> 11

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cgtggtcgtg gttgctggac gcg

23

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<212> DNA

<213> Homo sapiens

<400> 14

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Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn
          35          40          45
Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln
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Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr
65          70          75          80
Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr His Gln Lys Glu
          85          90          95
Ile Asp Lys Ile Asn Gly Lys Leu Glu Ser Pro Asp Asn Asp Gly
          100          105          110
Phe Leu Lys Ala Pro Cys Arg Met Lys Val Ser Ile Pro Thr Lys Ala
          115          120          125
Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys
          130          135          140
Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn
145          150          155          160
Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met
          165          170          175
Phe Pro Ser Glu Ser Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp
          180          185          190
Ser Glu Ser Leu Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro
          195          200          205
Lys Ala Thr His Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu
          210          215          220
Asp Ser Thr Ser Leu Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu
225          230          235          240

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Arg	Ala	Arg	Glu	Leu	Gln	Lys	Asp	His	Cys	Glu	Gln	Arg	Thr	Gly	Lys
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			260					265					270		
Glu	Ala	Lys	Glu	Ile	Lys	Ser	Gln	Leu	Glu	Asn	Gln	Lys	Val	Lys	Trp
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Phe	Glu	Asp	Ile	Lys	Ile	Leu	Lys	Glu	Lys	Asn	Ala	Glu	Leu	Gln	Met
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Cys Ala Asn Ile Leu Ile Asp Ser Gly Ala Asp Ile Asn Leu Val Asp
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Val Tyr Gly Asn Met Ala Leu His Tyr Ala Val Tyr Ser Glu Ile Leu
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Asn Lys Ala Ser Leu Thr Pro Leu Leu Ser Ile Thr Lys Arg Ser
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<210> 32

<211> 1397

<212> PRT

<213> Homo sapiens

<400> 32

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Arg Pro Ser Pro Phe Ser Gln Leu Val Tyr Thr Ser Asn Asp Ser Tyr
      20              25              30
Ile Val His Ser Gly Asp Leu Arg Lys Ile His Lys Ala Ala Ser Arg
      35              40              45
Gly Gln Val Arg Lys Leu Glu Lys Met Thr Lys Arg Lys Lys Thr Ile

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50	55	60
Asn Leu Asn Ile Gln Asp	Ala Gln Lys Arg Thr	Ala Leu His Trp Ala
65	70	75
Cys Val Asn Gly His Glu	Glu Val Val Thr Phe	Leu Val Asp Arg Lys
85	90	95
Cys Gln Leu Asp Val Leu	Asp Gly Glu His Arg Thr	Pro Leu Met Lys
100	105	110
Ala Leu Gln Cys His Gln	Glu Ala Cys Ala Asn Ile	Leu Ile Asp Ser
115	120	125
Gly Ala Asp Ile Asn Leu	Val Asp Val Tyr Gly Asn	Thr Ala Leu His
130	135	140
Tyr Ala Val Tyr Ser Glu	Ile Leu Ser Val Val Ala	Lys Leu Leu Ser
145	150	155
His Gly Ala Val Ile Glu	Val His Asn Lys Ala Ser	Leu Thr Pro Leu
165	170	175
Leu Leu Ser Ile Thr Lys	Arg Ser Glu Gln Ile Val	Glu Phe Leu Leu
180	185	190
Ile Lys Asn Ala Asn Ala	Asn Ala Val Asn Lys Tyr	Lys Cys Thr Ala
195	200	205
Leu Met Leu Ala Val Cys	His Gly Ser Ser Glu Ile	Val Gly Met Leu
210	215	220
Leu Gln Gln Asn Val Asp	Val Phe Ala Ala Asp Ile	Cys Gly Val Thr
225	230	235
Ala Glu His Tyr Ala Val	Thr Cys Gly Phe His His	Ile His Glu Gln
245	250	255
Ile Met Glu Tyr Ile Arg	Lys Leu Ser Lys Asn His	Gln Asn Thr Asn
260	265	270
Pro Glu Gly Thr Ser Ala	Gly Thr Pro Asp Glu Ala	Ala Pro Leu Ala
275	280	285
Glu Arg Thr Pro Asp Thr	Ala Glu Ser Leu Val Glu	Lys Thr Pro Asp
290	295	300
Glu Ala Ala Pro Leu Val	Glu Arg Thr Pro Asp Thr	Ala Glu Ser Leu
305	310	315
Val Glu Lys Thr Pro Asp	Glu Ala Ala Ser Leu Val	Glu Gly Thr Ser
325	330	335
Asp Lys Ile Gln Cys Leu	Glu Lys Ala Thr Ser Gly	Lys Phe Glu Gln
340	345	350
Ser Ala Glu Gly Thr Pro	Arg Glu Ile Thr Ser Pro	Ala Lys Glu Thr
355	360	365
Ser Glu Lys Phe Thr Trp	Pro Ala Lys Gly Arg Pro	Arg Lys Ile Ala
370	375	380
Trp Glu Lys Lys Glu Asp	Thr Pro Arg Glu Ile Met	Ser Pro Ala Lys
385	390	395
Glu Thr Ser Glu Lys Phe	Thr Trp Ala Ala Lys Gly	Arg Pro Arg Lys
405	410	415
Ile Ala Trp Glu Lys Lys	Glu Thr Pro Val Lys Thr	Gly Cys Val Ala
420	425	430
Arg Val Thr Ser Asn Lys	Thr Lys Val Leu Glu Lys	Gly Arg Ser Lys
435	440	445
Met Ile Ala Cys Pro Thr	Lys Glu Ser Ser Thr Lys	Ala Ser Ala Asn
450	455	460
Asp Gln Arg Phe Pro Ser	Glu Ser Lys Gln Glu Glu	Asp Glu Glu Tyr
465	470	475
Ser Cys Asp Ser Arg Ser	Leu Phe Glu Ser Ser Ala	Lys Ile Gln Val
485	490	495
Cys Ile Pro Glu Ser Ile	Tyr Gln Lys Val Met Glu	Ile Asn Arg Glu
500	505	510

Val	Glu	Glu	Pro	Pro	Lys	Lys	Pro	Ser	Ala	Phe	Lys	Pro	Ala	Ile	Glu	515	520	525
Met	Gln	Asn	Ser	Val	Pro	Asn	Lys	Ala	Phe	Glu	Leu	Lys	Asn	Glu	Gln	530	535	540
Thr	Leu	Arg	Ala	Asp	Pro	Met	Phe	Pro	Pro	Glu	Ser	Lys	Gln	Lys	Asp	545	550	555
Tyr	Glu	Glu	Asn	Ser	Trp	Asp	Ser	Glu	Ser	Leu	Cys	Glu	Thr	Val	Ser	565	570	575
Gln	Lys	Asp	Val	Cys	Leu	Pro	Lys	Ala	Thr	His	Gln	Lys	Glu	Ile	Asp	580	585	590
Lys	Ile	Asn	Gly	Lys	Leu	Glu	Glu	Ser	Pro	Asn	Lys	Asp	Gly	Leu	Leu	595	600	605
Lys	Ala	Thr	Cys	Gly	Met	Lys	Val	Ser	Ile	Pro	Thr	Lys	Ala	Leu	Glu	610	615	620
Leu	Lys	Asp	Met	Gln	Thr	Phe	Lys	Ala	Glu	Pro	Pro	Gly	Lys	Pro	Ser	625	630	635
Ala	Phe	Glu	Pro	Ala	Thr	Glu	Met	Gln	Lys	Ser	Val	Pro	Asn	Lys	Ala	645	650	655
Leu	Glu	Leu	Lys	Asn	Glu	Gln	Thr	Leu	Arg	Ala	Asp	Glu	Ile	Leu	Pro	660	665	670
Ser	Glu	Ser	Lys	Glu	Lys	Asp	Tyr	Glu	Glu	Asn	Ser	Trp	Asp	Thr	Glu	675	680	685
Ser	Leu	Cys	Glu	Thr	Val	Ser	Gln	Lys	Asp	Val	Cys	Leu	Pro	Lys	Ala	690	695	700
Ala	His	Gln	Lys	Glu	Ile	Asp	Lys	Ile	Asn	Gly	Lys	Leu	Glu	Gly	Ser	705	710	715
Pro	Val	Lys	Asp	Gly	Leu	Leu	Lys	Ala	Asn	Cys	Gly	Met	Lys	Val	Ser	725	730	735
Ile	Pro	Thr	Lys	Ala	Leu	Glu	Leu	Met	Asp	Met	Gln	Thr	Phe	Lys	Ala	740	745	750
Glu	Pro	Pro	Glu	Lys	Pro	Ser	Ala	Phe	Glu	Pro	Ala	Ile	Glu	Met	Gln	755	760	765
Lys	Ser	Val	Pro	Asn	Lys	Ala	Leu	Glu	Leu	Lys	Asn	Glu	Gln	Thr	Leu	770	775	780
Arg	Ala	Asp	Glu	Ile	Leu	Pro	Ser	Glu	Ser	Lys	Gln	Lys	Asp	Tyr	Glu	785	790	795
Glu	Ser	Ser	Trp	Asp	Ser	Glu	Ser	Leu	Cys	Glu	Thr	Val	Ser	Gln	Lys	805	810	815
Asp	Val	Cys	Leu	Pro	Lys	Ala	Thr	His	Gln	Lys	Glu	Ile	Asp	Lys	Ile	820	825	830
Asn	Gly	Lys	Leu	Glu	Glu	Ser	Pro	Asp	Asn	Asp	Gly	Phe	Leu	Lys	Ala	835	840	845
Pro	Cys	Arg	Met	Lys	Val	Ser	Ile	Pro	Thr	Lys	Ala	Leu	Glu	Leu	Met	850	855	860
Asp	Met	Gln	Thr	Phe	Lys	Ala	Glu	Pro	Pro	Glu	Lys	Pro	Ser	Ala	Phe	865	870	875
Glu	Pro	Ala	Ile	Glu	Met	Gln	Lys	Ser	Val	Pro	Asn	Lys	Ala	Leu	Glu	885	890	895
Leu	Lys	Asn	Glu	Gln	Thr	Leu	Arg	Ala	Asp	Gln	Met	Phe	Pro	Ser	Glu	900	905	910
Ser	Lys	Gln	Lys	Lys	Val	Glu	Glu	Asn	Ser	Trp	Asp	Ser	Glu	Ser	Leu	915	920	925
Arg	Glu	Thr	Val	Ser	Gln	Lys	Asp	Val	Cys	Val	Pro	Lys	Ala	Thr	His	930	935	940
Gln	Lys	Glu	Met	Asp	Lys	Ile	Ser	Gly	Lys	Leu	Glu	Asp	Ser	Thr	Ser	945	950	955
Leu	Ser	Lys	Ile	Leu	Asp	Thr	Val	His	Ser	Cys	Glu	Arg	Ala	Arg	Glu	960		

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Leu Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met					
	980		985		990
Lys Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu					
	995		1000		1005
Ile Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu					
	1010		1015		1020
Cys Ser Val Arg Leu Thr Leu Asn Gln Glu Glu Lys Arg Arg Asn					
1025		1030		1035	1040
Ala Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu Gly Arg Ile Glu					
	1045		1050		1055
Glu Gln His Arg Lys Glu Leu Glu Val Lys Gln Gln Leu Glu Gln Ala					
	1060		1065		1070
Leu Arg Ile Gln Asp Ile Glu Leu Lys Ser Val Glu Ser Asn Leu Asn					
	1075		1080		1085
Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu Leu His Glu Asn					
	1090		1095		1100
Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu Glu Ile Ala Thr					
1105		1110		1115	1120
Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr Phe Glu Asp Ile					
	1125		1130		1135
Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met Thr Leu Lys Leu					
	1140		1145		1150
Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr Ser Gly Gln Leu					
	1155		1160		1165
Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser Lys Leu Lys Glu					
	1170		1175		1180
Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro					
1185		1190		1195	1200
Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg					
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Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln					
	1220		1225		1230
Arg Lys Met Asn Val Asp Val Ser Ser Thr Ile Tyr Asn Asn Glu Val					
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Leu His Gln Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys					
	1250		1255		1260
Ile Asn Leu Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val					
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Ser Glu His Ala Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys					
	1285		1290		1295
Glu Ala Glu His Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His					
	1300		1305		1310
Thr Glu Gln Gln Glu Ser Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser					
	1315		1320		1325
Lys Asn Met Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala					
	1330		1335		1340
Asp Asn Lys Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys					
1345		1350		1355	1360
Met Gln His His Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr					
	1365		1370		1375
Asn Asn His Leu Lys Asn Arg Ile Tyr Gln Tyr Glu Lys Glu Lys Ala					
	1380		1385		1390
Glu Thr Glu Asn Ser					
	1395				